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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/641,667	08/18/2000	John S. Fox	65446-0053	6732

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EXAMINER

CHEU, CHANGHWA J

ART UNIT	PAPER NUMBER
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1641

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/641,667

Applicant(s)

FOX, JOHN S.

Examiner

Jacob Cheu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-102 is/are pending in the application.
- 4a) Of the above claim(s) 18-102 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election of group I in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Accordingly, claims 18-102 are withdrawn from further consideration in this prosecution.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, line 9, "magnetic characteristics" is vague and indefinite. It is unclear what "magnetic characteristics" applicant refers to.

With respect to claim 10, "comprising a giant magnetoresistive ratio sensor" is vague and indefinite. It is unclear what applicant means "giant."

With respect to claim 12, line 2, "in relation to the other" is vague and confusing. It is unclear what "the other" applicant refers to.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-14, 16-17 are rejected under 35 U.S.C. 102 (b) as being anticipated by Baselt. (USP 5981297)

Baselt teaches an apparatus for detecting a target molecule species, comprising contacting the sample with binding molecules (probes), i.e. antibodies, DNA or RNA, where the binding molecules are magnetizable labeled, and subjecting the sample with a magnetoresistive or magnetostrictive magnetic field sensor for determining the magnetic characteristics of the binding molecule-target complex. (See claims 1, 6, 7, 17, 24) Baselt also teaches using fluorescent label as the detecting means, disposing the binding molecules on a support in an addressable array with a plurality of applied magnetic fields and generating readable output signal. (See Figure 1; Col. 9, line 22-25; 1, line 48-50; Figure 3, 5) Although, Baselt does not specifically teach using a plurality of magnetic fields having different directions, it is an inherent characteristic that such plurality of magnetic fields arrangement would be able to generate different directions of magnetic force. Thus, Baselt anticipates the instant claims 1-14, 16-17.

5. Claims 1-14, 16-17 are rejected under 35 U.S.C. 102 (b) as being anticipated by Shieh et al. (USP 6057167)

Shieh et al. teach a method of detecting a target molecule by using a probe, i.e. DNA, where the probe is attached to a magnetoresistive member so that when the target molecule is bound with the probe, the magnetic field from the probe would influence a magnetization-dependent characteristic of the magnetoresistive member in accordance with a giant magnetoresistance effect. (See claim 7, 9, 10) Shieh et al. also teach using a plurality of magnetic fields in an addressable array to detect multiple molecules. (Figure 4) Shieh et al. teach using fluorescent as detecting means. (Col. 1, line 52-55) Although, Shieh et al. do not specifically teach using a plurality of magnetic fields having different directions, it is an inherent characteristic that such plurality of magnetic fields arrangement would be able to generate

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different directions of magnetic force. Thus, Shieh et al. anticipates the instant claims 1-14, 16-17.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baselt or Shieh et al. in view of Moeremans et al. (EP 0165633).

Both the references of Baselt and Shieh et al have been discussed supra but they do not specifically teach contacting the target molecule or molecule complex with a non-magnetic colloid. Moeremans et al. teach contacting samples with colloid metal particles for better affinity and selectivity to the target molecules. (page 2, line 31-35; claim 2) The colloid metals include non-magnetic metals, such as platinum, gold, silver, and copper. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided either Baselt or Shieh et al. with the non-

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magnetic colloid materials to complex with the target molecule as taught by Moeremans et al. for a better affinity and selectivity in detecting the target molecule in a sample.

Conclusion

7. No claim is allowed.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Cheu whose telephone number is 703-306-4086. The examiner can normally be reached on 8:30-5:00.

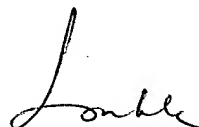
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 703-305-3399. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4556 for regular communications and 703-308-4556 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3399.

Jacob Cheu
Examiner
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June 16, 2003



LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

06/16/03